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| APPLICATION NO.            | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.   | CONFIRMATION NO. |
|----------------------------|-------------|----------------------|-----------------------|------------------|
| 10/083,926                 | 02/27/2002  | Lixiao Wang          | 10527-395001 / 02-026 | 4859             |
| 26161                      | 7590        | 06/22/2006           | EXAMINER              |                  |
| FISH & RICHARDSON PC       |             |                      | HO, UYEN T            |                  |
| P.O. BOX 1022              |             |                      | ART UNIT              |                  |
| MINNEAPOLIS, MN 55440-1022 |             |                      | PAPER NUMBER          |                  |
|                            |             |                      | 3731                  |                  |

DATE MAILED: 06/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/083,926

Applicant(s)

WANG ET AL.

Examiner

(Jackie) Tan-Uyen T. Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-34 and 36-81 is/are pending in the application.
- 4a) Of the above claim(s) 19, 37-42 and 44-72 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-18, 20-34, 36, 43, 73-81 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/24/06 has been entered.

### ***Response to Arguments***

2. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 6-18, 20-34, 36, 43, 73-81 rejected under 35 U.S.C. 103(a) as being unpatentable over Vigil et al. (5,336,234) in view of Grayzel (4,796,629) and further in view of Grayzel et al. (6,942,680).

Vigil et al. disclose an angioplasty dilate balloon carrying cutting elements (19). Vigil et al. also teach that the stiffness of thin outer wall of a dilate balloon is a concern

as placing the strips for support the cutting elements. Although, Vigil et al. do not disclose a balloon with reinforced wall as claimed for supporting the cutting element, attention is directed to Grayzel '629 reference which teach an angioplasty dilate balloon being reinforced by a second material encapsulated by the balloon material for enhancing the stiffness of the balloon wall at certain area and/or to exert a greater force on objects in contact with the surface of the balloon such that assist in the fixing of the location of the stiffening means to a treated surface. Grayzel et al. '680. teach the reinforcing members can be varying in length to provide the balloon with flexibility and reinforcing members being radiopaque. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the balloon of Vigil et al.'s device in view of Grayzel et al. by having the strips/reinforcing member encapsulate within the balloon materials in order to support the blades and exert a greater force to assist anchoring the blades into a treated surface.

It would have been obvious to modify the device of Virgil in view of Grayzel '629 to having reinforcing members as disclosed by Grayzel et al.' 680 in order to provide more flexibility to the balloon and provide means for locating the device within a body lumen.

In regard to claim 30, although the teaching of Virgil in view of Grayzel does not disclose the striped portion being made from a liquid crystal polymer, Grayzel and Vigil et al. suggest making the strips from plastic. A liquid crystal polymer is a well-known material in the art to make angioplasty balloon portions that require rigid. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention

was made to substitute the material of the striped portion of the Virgil in view of Grayzel's balloon with a liquid crystal polymer in order to provide stiffness to a balloon portion to support the cutting element on the balloon.

5. Claims 1-4, 6-18, 20-34, 36, 43, 73-81 rejected under 35 U.S.C. 103(a) as being unpatentable over Grayzel (4,796,629) in view of Barath (5,196,024). Grayzel discloses all the limitations of the claims except for a presence of a cutting element. Barath disclose employing cutting blades onto a dilation balloon in order to further treat the stenosis. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ cutting elements onto the surface of Grayzel's dilation balloon in order to further treat the stenosis.

Grayzel teaches that the balloon areas having the reinforcing strips exert a greater force on objects in contact with the surface of the balloon. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to place the cutting elements at the area including reinforcing strips in order to optimize the placement of the blades into the stenosis.

It would have been obvious to modify the device of Grayzel '629 in view of Barath to having reinforcing members as disclosed by Grayzel et al.' 680 in order to provide more flexibility to the balloon and provide means for locating the device within a body lumen.

In regard to claim 30, although the teaching of Grayzel in view of Barath does not disclose the striped portion being made from a liquid crystal polymer, Grayzel suggests to make the strips from plastic. A liquid crystal polymer is a well-known material in the

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art to make angioplasty balloon portions that require rigid. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the material of the striped portion of the Virgil in view of Grayzel's balloon with a liquid crystal polymer in order to provide stiffness to a balloon portion to support the cutting element on the balloon.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Jackie) Tan-Uyen T. Ho whose telephone number is 571-272-4696. The examiner can normally be reached on MULTIFLEX Mon. to Sat..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ANHTUAN NGUYEN can be reached on 571-272-4963. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



(Jackie) Tan-Uyen T. Ho  
Primary Examiner  
Art Unit 3731

June 18, 2006